FACE DETECTION METHOD AND ELECTRONIC DEVICE FOR SUPPORTING THE SAME

PRIORITY

[0001] This application claims priority under 35 U.S.C. §119(a) to Korean Patent Application No. 10-2015-0146253, filed in the Korean Intellectual Property Office on Oct. 20, 2015, the disclosure of which is incorporated herein by reference.

BACKGROUND

[0002] 1. Field of the Disclosure

[0003] The present disclosure relates generally to face detection methods and electronic devices for supporting the same, and more particularly, to face detection methods with exposure configuration compensation and electronic devices for supporting the same.

[0004] 2. Description of the Related Art

[0005] Electronic devices, such as, for example, digital cameras, digital camcorders, or smartphones, for photographing objects using their image sensors are widely used. Such electronic devices may perform a face detection function of distinguishing a face of a person from a background or an object, in order to more clearly photograph the face of the person. However, a face shape of a person is not clearly shown in a backlight condition, making it is difficult for the conventional electronic device to detect a face in this condition.

SUMMARY

[0006] The present disclosure has been made to address at least the above problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present disclosure provides a face detection method configured to change an exposure configuration if a specified shape is detected in an image, and an electronic device for supporting the same.

[0007] In accordance with an aspect of the present disclosure, an electronic device is provided that includes a photographing module configured to obtain an image of an object using a first exposure configuration. The electronic device also includes a processor configured to determine whether a designated shape is in the image based on luminance information of the image, and change the first exposure configuration to a second exposure configuration when the designated shape is in the image.

[0008] In accordance with another aspect of the present disclosure, an electronic device is provided for obtaining an image for an object. The electronic device includes a memory configured to store the image, and a display configured to output a preview image for the image. The electronic device also includes a processor configured to store the image in the memory if user input for an image photographing command is received, and to determine whether a designated shape is in the image based on luminance information of the image. The processor is further configured to change an exposure configuration of a photographing module of the electronic device when the designated shape is in the image.

[0009] In accordance with another aspect of the present disclosure, a face detection method of an electronic device is provided. An image of an object is obtained using a first exposure configuration. It is determined whether a designated shape is in the image based on luminance information of the image. The first exposure configuration is changed to a second exposure configuration, when the designated shape is in the image.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The above and other aspects, features, and advantages of the present disclosure will be more apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which:

[0011] FIG. **1** is a block diagram illustrating a configuration of an electronic device associated with face detection, according to an embodiment of the present disclosure;

[0012] FIG. **2**A is diagram illustrating a side view of a camera that mounts a face detection function, according to an embodiment of the present disclosure;

[0013] FIG. **2**B is a diagram illustrating a rear view of a camera that mounts a face detection function, according to an embodiment of the present disclosure;

[0014] FIG. **3**A is a diagram illustrating a side view of a smartphone that mounts a face detection function, according to an embodiment of the present disclosure;

[0015] FIG. **3**B is a diagram illustrating a rear view of a smartphone that mounts a face detection function, according to an embodiment of the present disclosure;

[0016] FIG. **4** is a block diagram illustrating a configuration of a processor associated with face detection, according to an embodiment of the present disclosure;

[0017] FIG. **5** is a flowchart illustrating an operation method of an electronic device associated with face detection, according to an embodiment of the present disclosure;

[0018] FIG. **6** is a flowchart illustrating an operation method of an electronic device associated with detecting a specified shape from an image, according to an embodiment of the present disclosure;

[0019] FIG. **7** is a flowchart illustrating an operation method of an electronic device associated with changing an exposure configuration, according to an embodiment of the present disclosure;

[0020] FIG. **8** is a flowchart illustrating an operation method of an electronic device associated with face detection using stored image data, according to an embodiment of the present disclosure;

[0021] FIG. **9** is a diagram illustrating detection of a specified shape from an image, according to an embodiment of the present disclosure;

[0022] FIG. **10** is a screen illustrating an operation of changing an exposure configuration and detecting a face, according to an embodiment of the present disclosure;

[0023] FIG. **11**A is a diagram illustrating an exposure configuration based on a distribution state of feature points in a specified shape, according to an embodiment of the present disclosure;

[0024] FIG. **11**B is a diagram illustrating an exposure configuration based on a distribution state of feature points in a specified shape, according to another embodiment of the present disclosure;

[0025] FIG. **12** is a screen illustrating an operation of detecting a face using stored image data, according to an embodiment of the present disclosure;

[0026] FIG. **13** is a diagram illustrating a pattern in which a face shape is stored, according to an embodiment of the present disclosure;